

CLAIMS

What is claimed is:

1. A mobile computing device, comprising:
 - a processor;
 - an evaporator thermally coupled to the processor, wherein a working fluid of the evaporator picks up heat generated by the processor; and
 - a heat exchanger coupled to the evaporator to remove heat from the mobile computing device, wherein the heat exchanger comprises a flattened tube and a plurality of fins coupled to the outside of the tube.
2. The mobile computing device of claim 1, wherein the flattened evaporator tube is approximately two millimeters from top to bottom and eight millimeters from side to side.
3. The mobile computing device of claim 1, further comprising a fan coupled to the heat exchanger to reject the heat from the working fluid in the heat exchanger.
4. The mobile computing device of claim 1, wherein the flattened tube comprises internal fins.
5. The mobile computing device of claim 1, wherein the flattened tube comprises a tube insert.
6. The mobile computing device of claim 5, wherein the tube insert is helically shaped.
7. The mobile computing device of claim 1, wherein the working fluid is water.

8. A method, comprising:
- manufacturing a heat exchanger tube for a computer system;
 - adding a tube filling into the heat exchanger tube; and
 - attaching a plurality of fins to the exterior of the heat exchanger tube.
9. The method of claim 8, wherein the tube filling is a twisted tape.
10. The method of claim 8, wherein the tube filling is helically shaped.
11. The method of claim 10, wherein the helically shaped tube filling comprises copper.
12. The method of claim 8, wherein the plurality of fins is attached to the heat exchanger tube by solder.
13. The method of claim 8, wherein the plurality of fins is attached to the heat exchanger by epoxy.
14. The method of claim 8, wherein the plurality of fins is attached to the heat exchanger by press fit.
15. A thermal management system of a computer system, comprising:
- a heat generating component;
 - a cold plate coupled to the component to remove heat from the component, wherein the heat is transported via a working fluid; and
 - a pump coupled to the cold plate to transport the working fluid from the cold plate to a heat exchanger, wherein the heat exchanger comprises a tube filling that closely fits the tube.
16. The thermal management system of claim 15, wherein the tube filling has a

diameter that is less than or equal to the tube diameter.

17. The thermal management system of claim 16, wherein the heat exchanger tube is approximately five millimeters in diameter.

18. The thermal management system of claim 15, wherein the tube filling comprises plastic.

19. The thermal management system of claim 15, wherein the tube filling comprises aluminum.

20. The thermal management system of claim 15, wherein the tube filling is helically shaped.

21. A thermal management system, comprising:

means for providing a uniform temperature distribution of working fluid within a heat exchanger tube; and

means for removing heat from a computer system.

22. The thermal management system of claim 21, further comprising:

means for reducing the distance from the top of the heat exchanger tube to the bottom of the heat exchanger tube.

23. A heat exchanger, comprising:

a tube having n internal fins to provide an even temperature distribution to the working fluid inside of the tube, wherein n is an integer greater than or equal to one; and

a plurality of fins coupled to the outside of the tube to help remove heat from the tube.

24. The heat exchanger of claim 23, wherein the n internal fins are built into the tube.

25. The heat exchanger of claim 23, wherein the heat exchanger is part of a single-phase loop.

26. The heat exchanger of claim 23, wherein the heat exchanger is part of a refrigeration loop.

27. The heat exchanger of claim 23, wherein the heat exchanger is part of a two-phase loop.

28. The heat exchanger of claim 23, wherein the tube is four to six millimeters in diameter.

29. The heat exchanger of claim 23, wherein the tube and the internal fins comprise copper.